CLAIMS

1. Method for real-time control of the fabrication of a thin-film structure comprising a substrate by ellipsometric measurement in which:
   - variables directly linked to the ellipsometric ratio $\rho = \tan\Psi \exp(i\Delta)$ are measured; and
   - the said variables are compared with reference values,

   characterized in that the comparison relates to the length of the path traveled at a time t in the plane of the variables with respect to an initial point at time $t_0$, for each layer participating in the thin-film structre.

2. Control method according to Claim 1, characterized in that the said variables are a combination of the parameters $\Psi$ and $\Delta$.

3. Control method according to Claim 1, characterized in that the said variables are a combination of trigonometric functions of the parameters $\Psi$ and $\Delta$.

4. Control method according to one of Claims 1 to 3, characterized in that the ellipsometric measurement is one with phase modulation.

5. Control method according to Claim 4, characterized in that the measured variables are, respectively:
   $I_s = (\sin 2\Psi \sin\Delta)$ and
   $I_c = (\sin 2\Psi \cos\Delta)$ or $I_c = \cos 2\Psi$.

6. Control method according to one of Claims 1 to 3, characterized in that the ellipsometric measurement is carried out using the method called "rotating polarizer" method.

7. Control method according to Claim 6, characterized in that the measured variables are tan $\Psi$ and cos $\Delta$.

8. Control method according to any one of Claims 1 to 7, characterized in that the ellipsometric measurement is a multiwavelength measurement.

9. Control method according to any one of Claims 1 to 8, characterized in that the reference values form a theoretically determined path.

10. Control method according to any one of Claims 1 to 8, characterized in that the reference values form an experimentally determined path.

11. Control method according to any one of Claims 1 to 10, characterized in that the reference values are discrete points corresponding to the instants of fabrication of the thin layers with respect to the time $t_0$.

12. Control method according to any one of Claims 1 to 11, characterized in that the path traveled is adjusted by a polynomial of order between 1 and 5.

13. Control method according to any one of Claims 1 to 12, characterized in that the reference values are determined by measurement, using the succession of the following steps:

- measurement of a known layer on a simple substrate;
- measurement of the same known layer on an industrial substrate;
- measurement of the thin-film structre to be controlled.